

FUTURES FOR HIGHER EDUCATION ANALYSING TRENDS

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Universities UK

HIGHER
EDUCATION:
MEETING THE
CHALLENGES
OF THE 21ST
CENTURY

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Introduction

Context

Higher education in the United Kingdom is undergoing a period of significant change. This is being driven by a number of factors: political, cultural, economic, and technological. The trends are global in their scope, and far reaching in their impact. They affect every aspect of university provision, the environment in which universities operate, what they will be required to deliver in future, and how they will be structured and funded.

In periods of rapid change such as this, senior managers by necessity focus on short-term strategy and transition planning. However, the forces in play now are also likely to have long-term consequences, potentially altering the shape and nature of the higher education system in the UK.

In order to take stock of these factors, Universities UK (UUK)'s Longer Term Strategy Network initiated a scenario development exercise in October 2010, which ran through to July 2011. This provided an opportunity for university leaders to identify the factors that were most likely to be significant in shaping the future agenda for the sector, and to think through their impact and implications, over a 15- to 20-year period.

The exercise was not an attempt to predict the future or to make forecasts which would almost certainly prove to be inaccurate. Rather, it aimed to gain a better understanding of the drivers and forces that have the greatest potential to shape the present and the future, to consider how these might be anticipated or influenced to ensure that universities can continue to deliver highly valued outcomes in a future environment, and to gain greater insight and understanding into the present context.

The information presented in this report is intended to provide a platform for further discussion and reflection about the future. There is no single interpretation of a possible outcome for the sector, but rather a set of frameworks to support thinking about the changes which are currently taking place in higher education, and where these might lead.

Process

There are many different ways in which scenario development exercises could be conducted, and many different traditions to draw on. For the purposes of this exercise, it was felt that an approach should be taken which would: allow collective discussion of the sort of future towards which members of UUK would like to see the sector move; aim to set the agenda, rather than merely respond to external events; and better reflect the urgency with which the current issues need to be dealt with.

This approach leads to an outcome which represents the future as a series of possible paths, identifying the most important assumptions along the way. The result of this process for the UUK project is set out in the final chapter of this report, and is summarised in the next section of this introduction.

The main phases through which the scenarios exercise proceeded were:

1. Mapping the current drivers of change
2. Defining possible future scenarios
3. Filling out the scenarios in more detail, and providing some narrative commentary
4. Specifying possible event timelines
5. Modelling potential outcomes according to each scenario

The themes and analysis set out in this report were generated through an interactive process of development, testing and reflection carried out over a period of months with university leaders and stakeholders from the sector, led by UUK's Longer Term Strategy Network.

The principal steps in this process were:

- initial scoping of the main issues facing UK higher education
- a series of development workshops with staff and stakeholders looking at the trends shaping the system
- testing assumptions through a series of workshops held in a range of universities
- a 24-hour round table discussion with the Longer Term Strategy Network, reflecting on the wider themes and implications from the exercise
- individual conversations with academics, university administrators, and other stakeholders to develop and refine the analyses

Summary of themes and trends

The principal themes examined in the course of the project were:

- Funding models
- Future demand for higher education (domestic and global)
- Innovation in service design and delivery

This framework was used to generate a collective vision of a positive future for higher education in the UK, acknowledging the significant risks that would have to be negotiated to arrive there. The vision is presented as a series of choices faced by institutions, and by those with a collective responsibility for higher education, rather than as an attempt to predict the future.

UK higher education currently faces a number of possible futures. The most positive of these would see increasing integration of institutional interest with the wider public good, successfully negotiating a world of ever-increasing complexity and diversity, and placing universities at the heart of social and economic advancement.

Arriving there will require treading a careful path between the twin aims of:

- ensuring that universities continue to remain fully engaged in society at all levels
- ensuring that the regulatory and operating environment for universities is such that it allows them to continue to flourish and maintain their world-class status

The main themes emerging from the analysis underpinning this vision, and which was carried out in support of this project, are gathered under the following headings:

- Growth and investment
- Global demand for higher education
- Innovation in higher education delivery
- Redefining the institution
- Conclusions: from national industry to global system

This analysis is summarised and presented in the remainder of this report.

About this report

This report is intended to be used by those who are currently engaged in thinking about the future of higher education in the UK. It is one element within a set of resources arising from the project, which collectively comprise a toolkit which can be used by anyone looking to undertake a scenario planning exercise as part of their own strategy development.

These resources comprise a summary 'vision' of a possible future for the sector; description and analysis of the most prominent critical uncertainties which the sector is currently facing (and which comprise the majority of this report); and a set of practical tools for institutions to use in applying the thinking to their own situations.

We hope this toolkit will assist planning in institutions and other stakeholder organisations, and will help inform the debates which are currently taking place across the higher education system.

Other components of the toolkit include:

- Background and guidance on using scenario planning in support of the strategy development and planning cycle
- A step-by-step guide for running a scenarios workshop, with supporting resources
- A selection of other ready-made resources from which institutions can pick and choose, to adapt to their own scenarios exercises and internal needs

The resources are available at:
www.universitiesuk.ac.uk/ScenariosProject

1. Growth and investment

The recent history of higher education has been one of continued growth and investment. This is reflected both in terms of income into the sector (Fig 1a and 1b), and in terms of numbers of students (Fig 2). Total income is 60 per cent higher in real terms than in 2000/01, with only endowment and investment income showing a real terms decrease. Total numbers have grown by 28 per cent between 2000/01 and 2009/10, to around 2.5 million students, over three quarters of whom are undergraduates. The proportions of these undergraduates studying full time were very similar in 2009/10 to a decade earlier, indicating the continued prevalence of this model of study, where 59.5 per cent of students are under 21 years old.

The higher education reforms introduced for 2012/13 reflect both the culmination of 13 years of higher education funding policy, while also potentially signalling the beginning of a significant period of change for the sector. How the current proposals will impact on the sector in the short term depends on:

- student decision-making behaviour in terms of preferred modes of delivery, subjects and institutions
- the resilience of institutions and the effectiveness of their strategies to operate in an evolving market
- demand from international students, and the impact of immigration policy reforms and the global economic crisis

FIG 1a
Level and sources of income to the UK higher education sector, 2000/01 and 2009/10

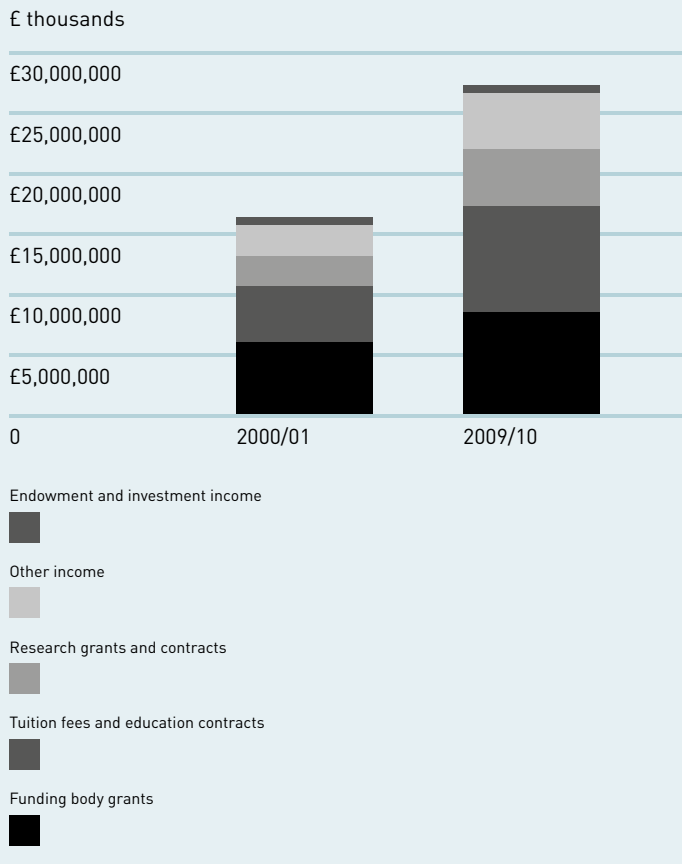


FIG 1b
Percentage change in income sources between 2000/01 and 2009/10

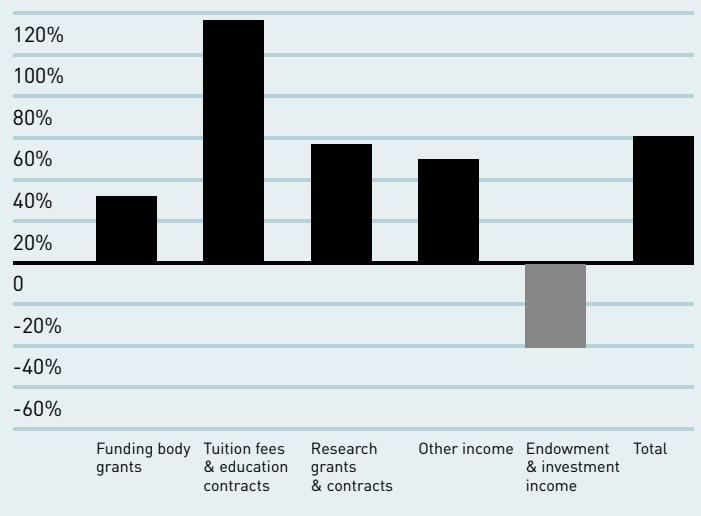
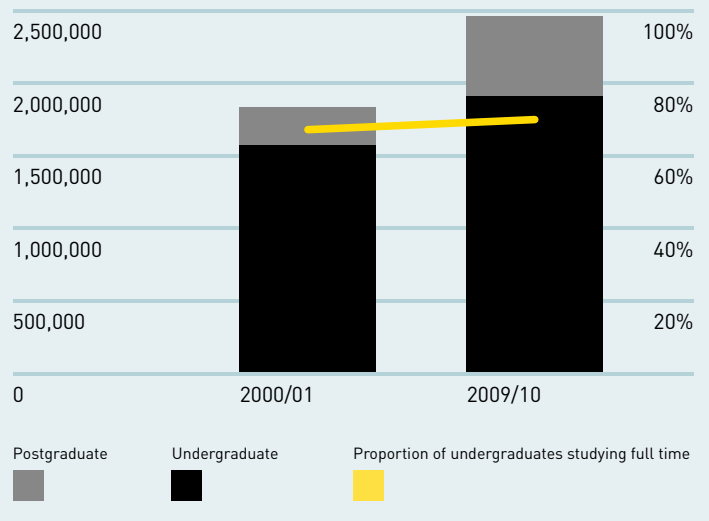


FIG 2
Numbers of students at undergraduate and postgraduate level, and proportion of undergraduates studying full time, 2000/01 and 2009/10



Domestic participation trends

The experiences of the last decade show a continuing growth in demand for higher education from UK-domiciled students (Fig 3). In light of rising demand coupled with constraints in public funding, there has also been increasing regulation of supply of places in order to control overall costs, reflected in the smaller increase in full-time undergraduate acceptances compared to applications between the 2008 and 2010 admissions cycles.

A number of modelling and projection exercises have been undertaken which indicate that domestic demand will remain strong in the longer term. This is largely driven by a rebalancing of economic needs toward higher level skills, together with changing social backgrounds:

Higher level skills agendas

A range of domestic and European education and skills agendas aimed at shifting toward a high skilled economy, alongside longer compulsory education and training, indicate a trend toward higher education becoming the primary entry point into the labour market. This is illustrated by the fact that those occupations where high level skills are most prominent are projected to account for the majority of jobs growth in the UK economy over the next decade (Fig 4).

FIG 3

UCAS applicants and acceptances in the 2005 to 2011 cycles
– UK-domiciled students

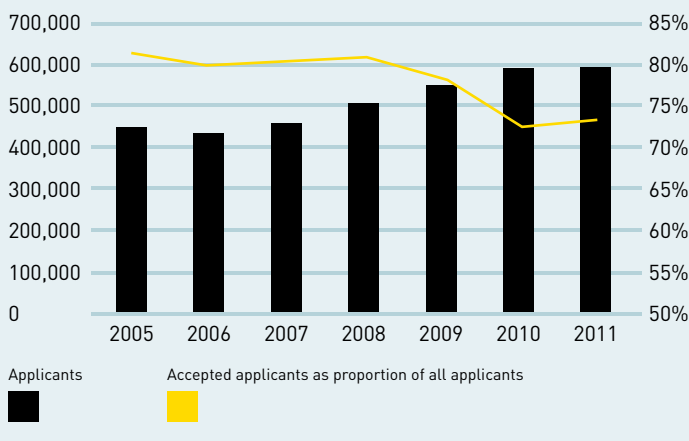
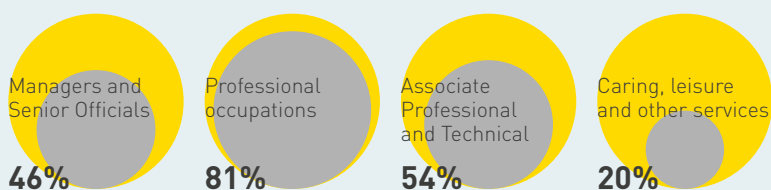


FIG 4

Percentage of graduates (2010) within occupations with the largest projected share of new jobs in the UK economy up to 2020



Population changes

Official projections lead us to expect a decline in the 18 year old population over the next decade (Fig 5). It is possible, however, that changes in the social class composition of the population could alleviate the effects on full-time demand (Fig 6), through an increase in the proportion of students who have historically attended university in the UK. Other demographic factors driving continued increases in participation include the growing second-and third-generation minority and migrant communities, which also tend to have proportionally higher rates of participation at university.

Educational changes

This change in the composition of the population may accelerate increases in the proportion of young students achieving Level 3 and above qualifications, which now stands at 54.2 per cent of 19 year olds (Fig 7).

FIG 5

Decline in the UK 18 year old population to 2020

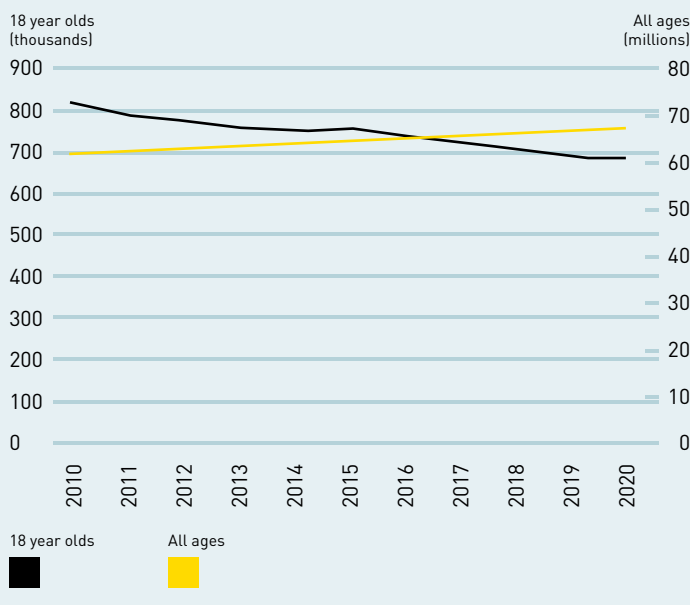


FIG 7

Proportion of 19 year olds in England qualified to Level 3, 2004 to 2010

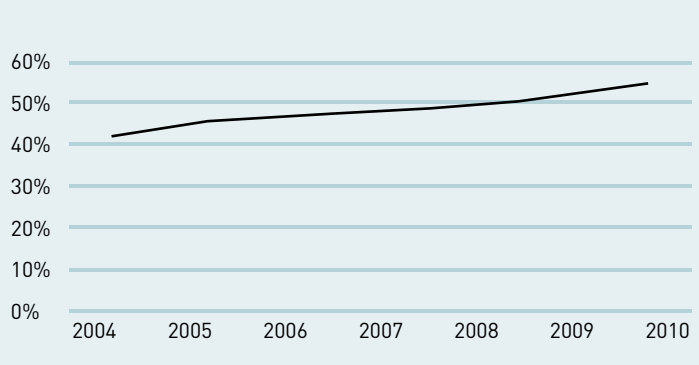
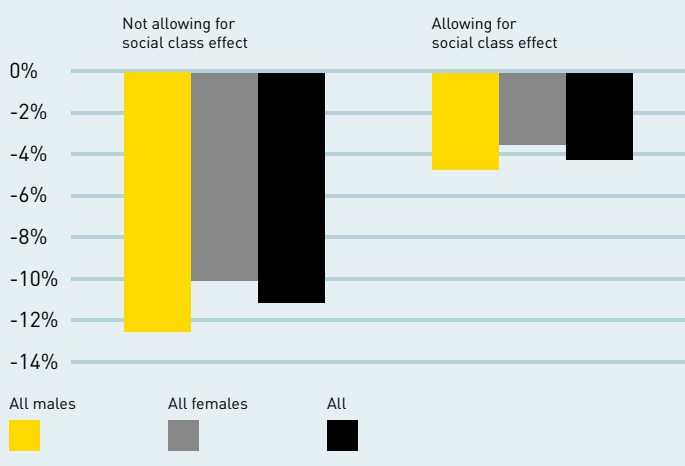


FIG 6

Effect of allowing for changes in the social class composition of the population on the change in demand for full-time undergraduate education, 2007/08 to 2020/21



Changes in the structure of funding for higher education

While the overall level of student demand is likely to remain strong, the allocation of a significant proportion of funding to institutions will be based on the decisions that students make.

Figure 8 illustrates the pattern of investment over the past 20 years, with the majority of the new government investment into the sector over the past decade directed via public and privately regulated student fees (alongside a capital investment fund). The recent set of reforms goes one step further by reducing the grant and replacing it with a graduate contribution (Fig 9).

However, current intervention in the market is attempting to encourage a wider range of pricing by incentivising institutions to reduce tuition fees below £7,500 per year. There is also a deregulation of student number controls for students above an attainment threshold of AAB, on the basis that this is a relatively steady overall cohort that is unlikely to expand. While this has raised questions about the impact both on institutions and on student behaviour, modelling is highly difficult, with cost and academic reputation only two of many factors determining student choices.

These changes could have potentially far-reaching consequences on the shape and structure of the UK higher education system, particularly if (as is currently planned) further deregulation according to both price and qualifications is introduced on a rapid basis.

FIG 8
The publicly planned unit of funding per full-time equivalent (FTE) student to 2009/10 (real terms – 2009/10 = 100)

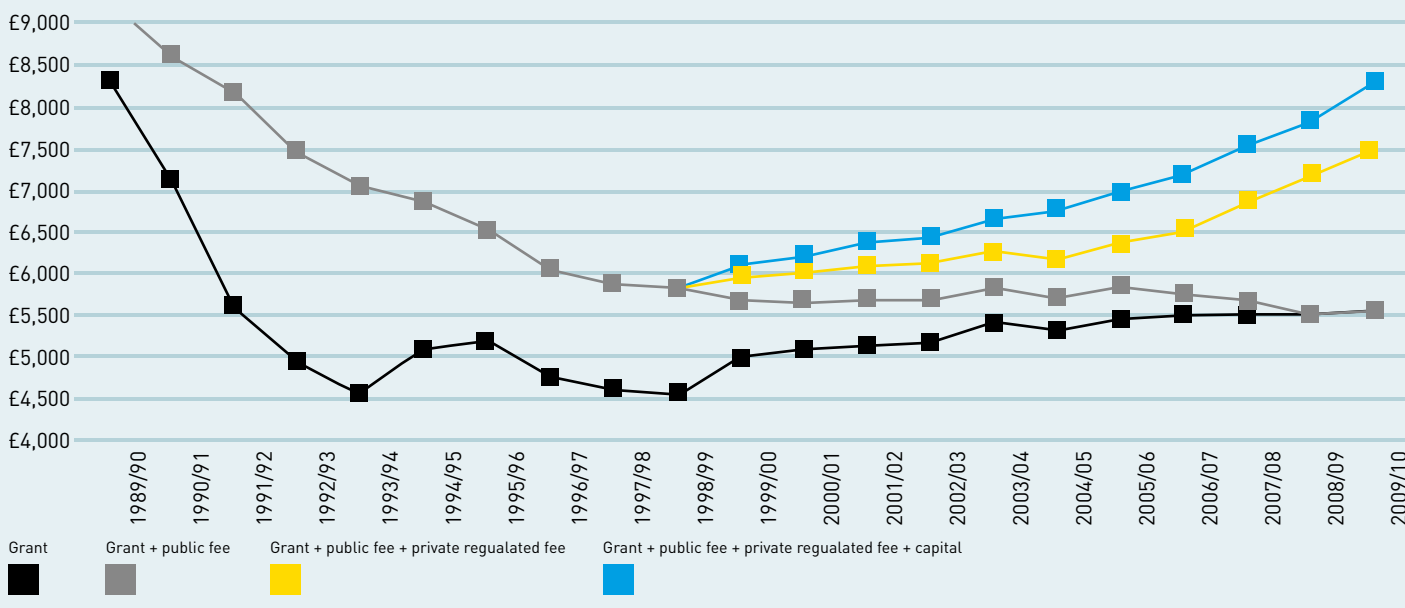
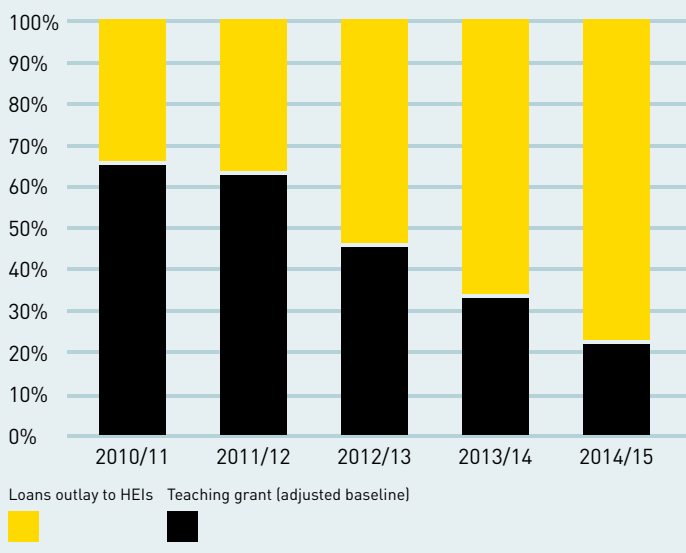


FIG 9
Indicative breakdown of funding between loans for the graduate contribution and HEFCE teaching grant between 2010/11 and 2014/15



This change will have a significant short-term impact on the public finances, with the net impact of outlay on fee and maintenance loans expected to reach £13.5 billion by 2016/17 (a 141 per cent increase on 2011/12) and the long-run resource cost of subsidising loans likely to be in excess of £3.3 billion by the same point.¹ This change is also likely to have a long-term cumulative effect, bringing about a cultural shift in the relationship between students and institutions, and in how institutions perceive and govern themselves.

Private funding

Higher education occupies a distinct position in relation to public investment calculations. It is a public good delivered by autonomous institutions which generates additional benefits for the UK in terms of overseas revenue, research and development (R&D) output and attracting high value firms to the country.

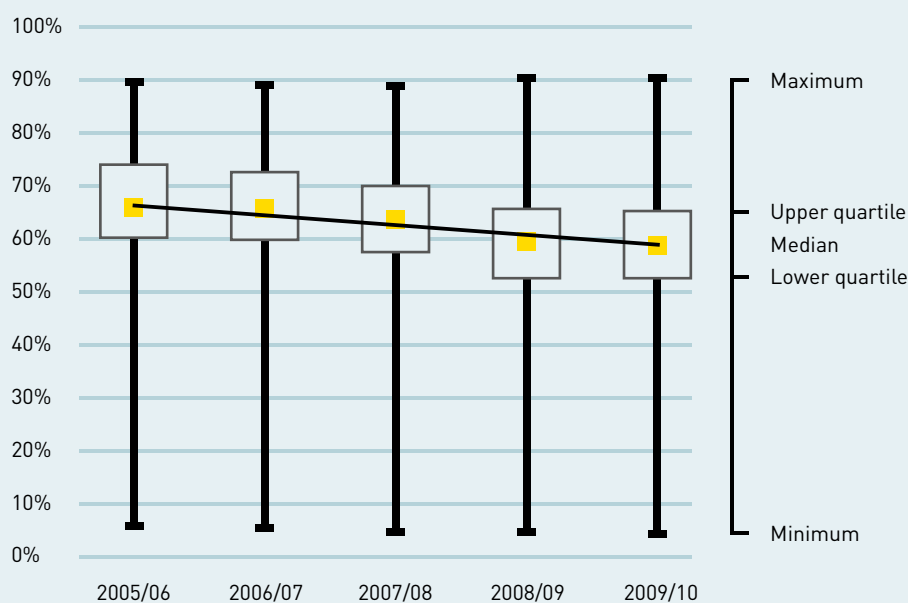
The scale of the current financial crisis will place a significant constraint on large scale public investment in the short, medium and even long term. There may be differences in the fiscal and economic policies of governments in the future, but universal public services such as healthcare and compulsory education may well be higher electoral priorities for future reinvestment than higher education.

Nevertheless, given the ongoing economic and social imperatives to produce more high quality graduates, and the growth of enrolments in competitor and emerging economies, options will need to be explored to expand the system and to generate innovative funding solutions – particularly for teaching. This will in all likelihood mean building on the foundations of the current system, with a higher individual contribution and an emphasis on the role of government as a strategic purchaser.

There is also a continuing role for government in supporting research as an essential component of ongoing national economic and social development.² However, research funding is increasingly directed via contracts with institutions for more clearly instrumental outputs. The shift toward private models of research is also in the context of a recent history of a steadily decreasing reliance by institutions on public funds, as they seek to diversify their funding revenues (Fig 10). However, while the overall trend is towards a declining dependence on public funding, the distributional pattern shown in Figure 10 still clearly indicates the diversity of funding sources across the sector.

FIG 10

Proportion of income from public sources



¹Office for Budget Responsibility [December 2011] Student loans and the financial transactions forecast – Economic and fiscal outlook November 2011; Office for Budget Responsibility (March 2010) Economic and fiscal outlook – March 2011, Table 4.17.

²The current round of public spending cuts has left the science budget declining in real terms, while grant funding cuts for undergraduate teaching have been replaced through fees.

Influences on the public funding environment

The balance of public and other types of spending in higher education is influenced by a number of significant variables, including the balance between teaching grant and tuition funding. Other sources of public funding are quality related grant funding and project based grant funding, while the majority of research contracts are also with the public sector.

Future macroeconomic factors affecting the availability of public spending include:

- domestic and international economic growth
- domestic fiscal policy and budget deficits
- European and international banking stability
- the European sovereign debt crisis
- the rate and distribution of global economic growth and development

A market-based system

There are a number of drivers and policy tools that impact on the way in which higher education is governed. These comprise a number of 'push' and 'pull' factors, leading in turn (for example) to greater or lesser autonomy, and greater or lesser homogeneity. The four principal drivers are set out in the middle of the diagram opposite (Fig 11), and the corresponding effects shown in the boxes around the edges. Practical examples are shown below this (Fig 12). These drivers are all currently subject to change.

The shift toward demand-led funding, together with policies to relax the barriers to entry for new providers, is indicative of a more open and competitive higher education system. This is also currently accompanied by other features, such as reducing the asymmetry of information through improving the quality of the publicly-available data on higher education provision.

The increasing reliance on competition in higher education is likely to encourage the use of new forms of regulation and governance. Principal among these will be new accountability requirements (for example, around quality and financial management) that allow for broad-based comparisons to be made across the range of institutions accessing public money through student support and grant funding.

The use of incentives to shape particular outcomes desired from the sector is also increasing. These allow institutions the flexibility to set their own direction depending on their particular mission, vision, and degree of strategic freedom.

Features of the shift toward a more open and competitive system include:

- the shift toward demand-led funding and deregulation of places
- policy agendas aimed at opening up the system to a wider range of providers with different models of governance and delivery
- the opening up of Higher Education Statistics Agency (HESA) data to third party organisations to provide market information in support of student choice
- the progressive deregulation of student number controls between institutions, underpinned by funding reforms
- the application of competition law and Office of Fair Trading scrutiny

Recent examples of rational goals or incentives introduced into the system include:

- the reallocation of places to those institutions that have set their average annual tuition fee charges at or below £7,500
- the linking of access agreements to the ability to charge tuition fees over £6,000
- the deregulation of student number volume controls based on A-level qualification thresholds
- the introduction of impact and other evaluation metrics as part of research assessment and funding allocations
- the growing influence of national and international university league tables

FIG 11

Methods of sector governance

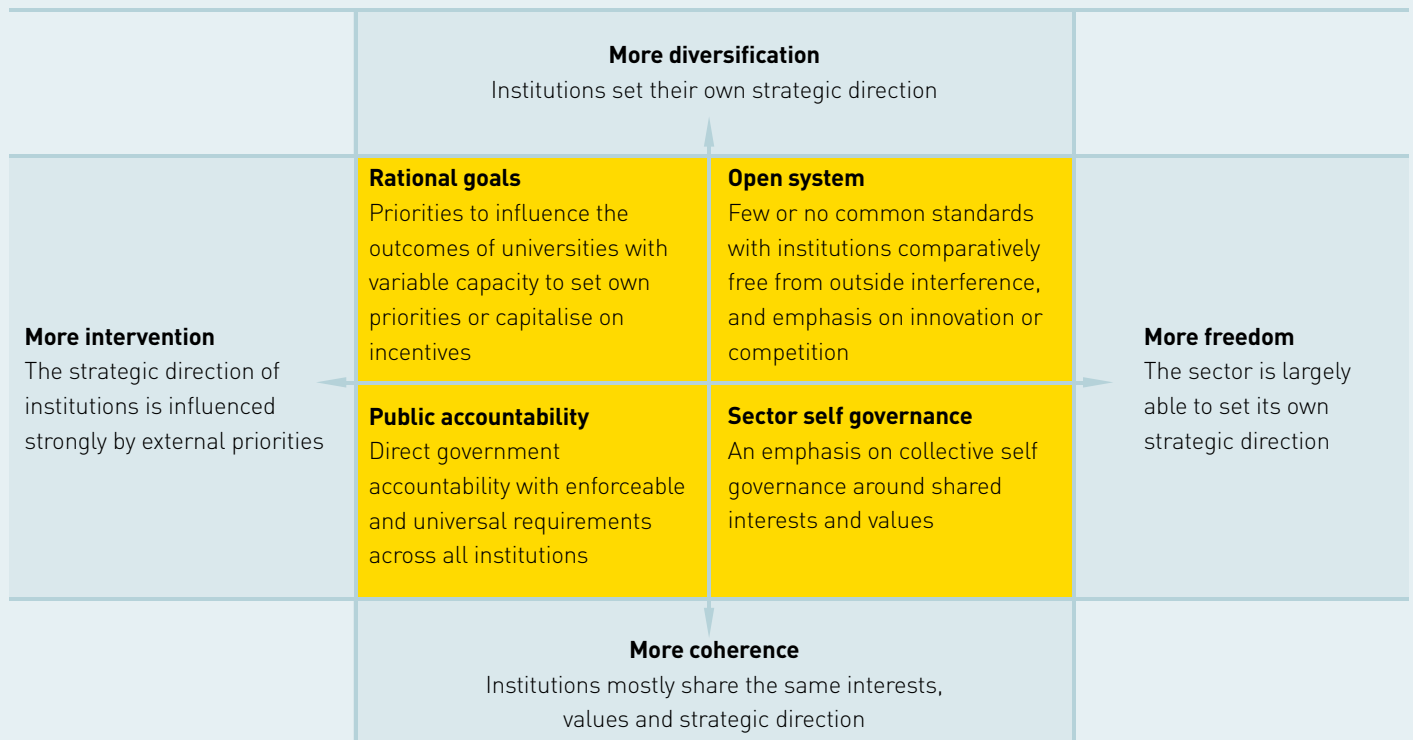
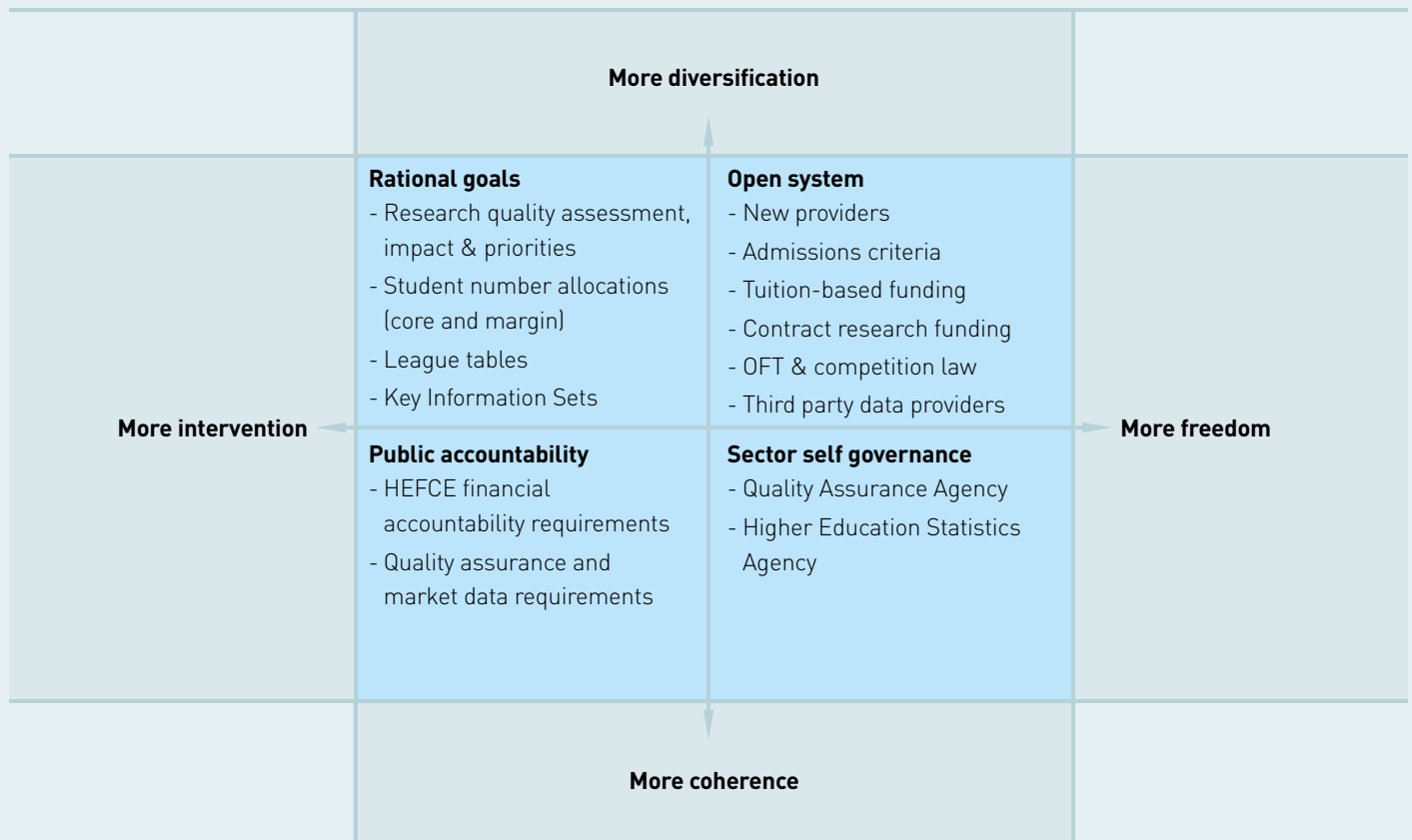


FIG 12

Examples of sector governance methods



Public benefits

In addition to economic value, the higher education system also generates substantial public benefits. This will remain a critically important feature of the outcomes generated by universities in the future, and will need to be maintained within a potentially more market-based system which has a significant emphasis on the individual returns to investment in higher education. The increasing use of the language of the market and marketisation could tend to crowd out consideration of the wider public goods which universities generate, but which will nevertheless remain vital to their future role and purpose.

Examples of these wider benefits include: increased health and wellbeing; reducing negative social outcomes such as unemployment or anti-social behaviour; increased participation as active citizens in society; improving social mobility and overcoming inequality; making a substantial contribution to the arts, culture, and quality of life; and connecting communities with the benefits of globalisation.

Public benefits are generated through a combination of three broad elements:

- Ensuring that the overall quality of the system is sustained
- Maintaining efficiency and transparency in the use of resources to support that system
- Ensuring that everyone in society can have a stake in accessing the benefits which arise as a result – whether directly or indirectly

Attention and commitment to all three of these elements increases public confidence in the system and in the institutions which comprise it, thereby strengthening the stake that wider society has in ensuring that the university system remains robust and fit for purpose in the future.

There are numerous ways in which public benefit could be quantified, and new methodologies are appearing all the time. The table below provides a snapshot of some of the principal outcomes that could underpin public value calculations, taking three broad indicators as an illustration: financial sustainability and transparency; maintaining quality; and encouraging social mobility.

Assessing public value

The financial sustainability of the system	<ol style="list-style-type: none">1. Managing the total cost of the system to the government through the loan book and student number controls2. Accounting for the practices of those organisations in receipt of public funding through student support and research income
Ensuring and enhancing 'quality' of education and research outcomes	<ol style="list-style-type: none">3. Producing graduates with the necessary skills, values and knowledge for a changing global economic and social landscape4. Supporting research excellence and encouraging innovation and knowledge exchange5. Protecting students' choices and expectations as private consumers in a competitive market
Encouraging socio-economic mobility and integration	<ol style="list-style-type: none">6. Widening the number of people participating in the system7. Ensuring equality of access to different institutions in the system8. Addressing inequality of outcomes

2. Global demand for higher education

While demand for higher education in the UK is likely to remain strong over the long term (although it may be affected by demographic and policy changes in the short term), the increase in overall global demand is likely to be even more pronounced. This will be driven largely by middle-income countries moving toward knowledge-based economic growth, including the BRIC countries Brazil, Russia, India and China. However, it will remain open to question whether the UK will be able to stay competitive and retain its current very high share of the international student market.

The UK currently enjoys a world-leading position in terms of numbers of international students attracted to study at its higher education institutions. This competitive advantage is based on features including:

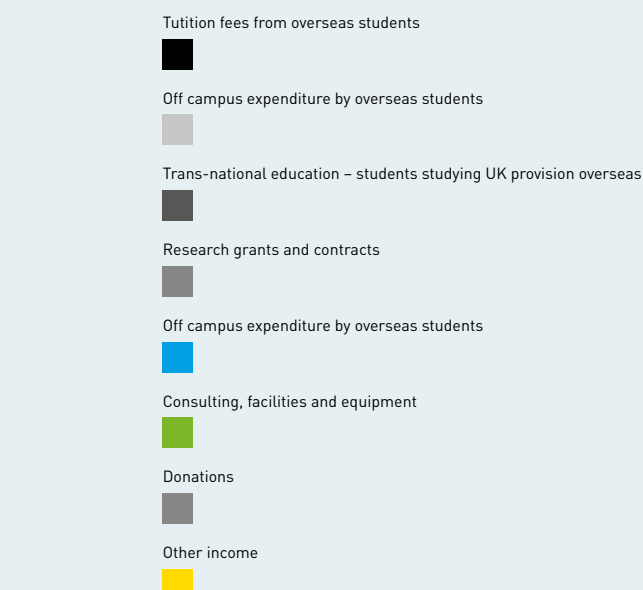
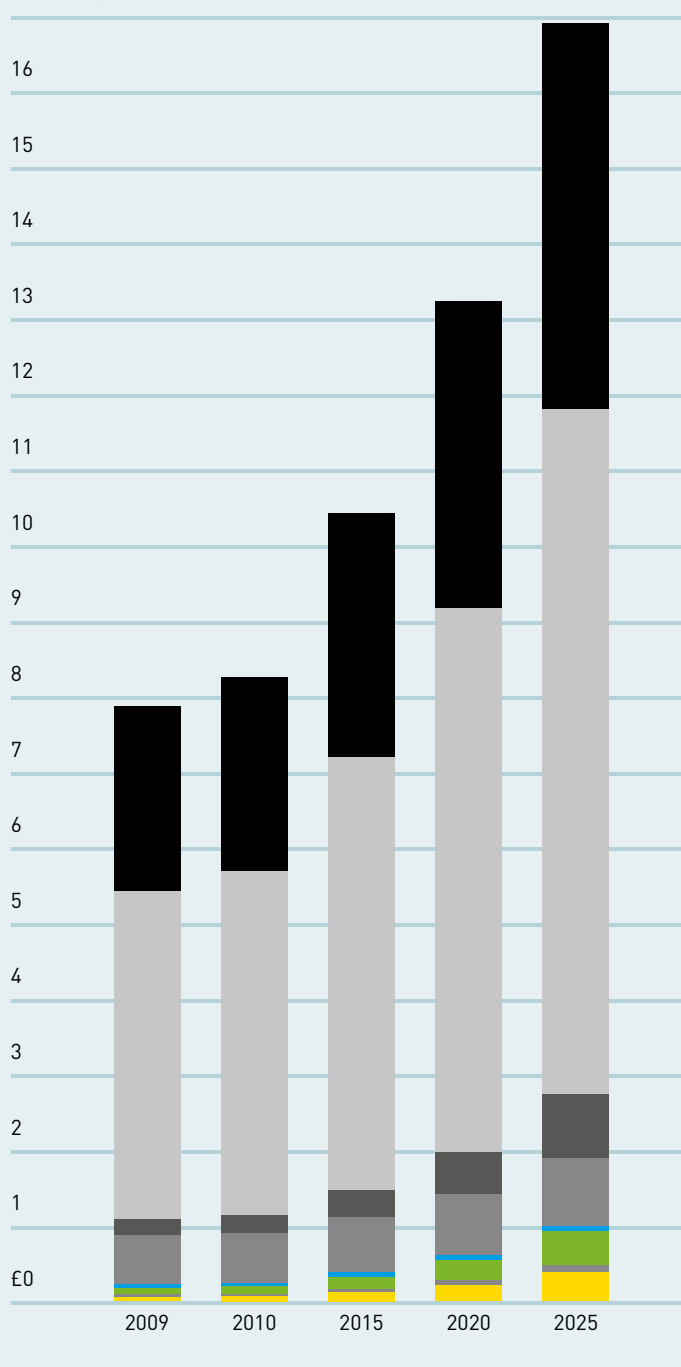
- an international reputation for education and research
- the profile of its elite global higher education brands
- historical trade and political links
- the popularity of English language study and culture
- post-study employment prospects

This increasing global demand has already had a significant beneficial effect on the UK higher education system, as well as on the wider economy. International higher education as a strategic export industry supports UK economic growth and R&D, and generates revenue to support the overall health of the system. The export earnings of higher education, including tuition fees and spending by non-UK students, has been estimated at £7.9 billion for 2009, which the sector could potentially grow to £16.9 billion by 2025 (Fig 13).

FIG 13

Higher education export earnings for the UK economy, 2008/09 prices

£17 million



However, this predicted growth is dependent on there being in place a favourable policy environment, including policies to promote the attractiveness of the UK as a destination for top international students, and to ensure the smooth flow of students into the system. Imposing restrictions on student visas, for example, will severely restrict the growth of this market.

Non-EU students and staff in UK higher education supporting strategically important subjects

In 2009/10 non-EU students formed 24 per cent of the total student numbers in engineering, 19 per cent of the total student numbers in computer science and over 11 per cent of the total student numbers in mathematics. Non-EU students made up 29 per cent of postgraduate research students, a key component of any university research capacity. This compares to 33 per cent and 35 per cent in the United States and France respectively.

In terms of staffing, 18 per cent of those with a known nationality were originally from outside the UK, with

International student mobility has been principally driven by China and India, and to a lesser extent by Nigeria and the Middle East (Fig 14). The fastest growing group of non-EU students in the UK are Indian students on taught postgraduate courses, which showed an increase of 189 per cent in enrolments in the five years to 2009/10.

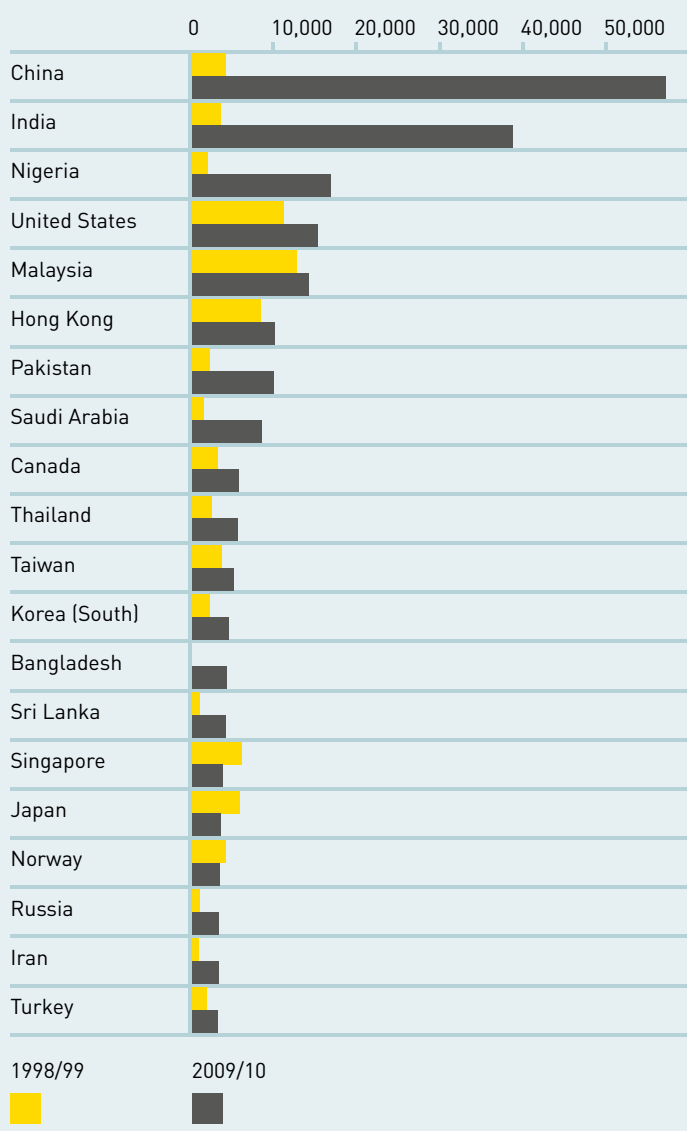
22 per cent of non-European Economic Area (EEA) academic staff appointed in 2009/10 previously students in this country, an increase from 13 per cent of non-EEA academic staff appointed before 2008/09.

Internationally mobile students

The enrolment of greater numbers into higher education has been a notable trend among Organisation for Economic Co-operation and Development (OECD) countries over the past 20 years. Globally, the percentage of the age cohort enrolled in tertiary education grew from 19 per cent in 2000 to 26 per cent in 2009 (OECD 2011).

FIG 14

Number of students in UK higher education institutions from the top 20 countries of domicile for non-EU students, 2009/10



Development of domestic higher education systems³

The development of domestic higher education systems in emerging economies such as China and India will be a significant factor shaping the global education landscape in the future. Organisations such as the World Bank now promulgate a model of productivity-led 'knowledge economies' as the principal path to successful growth. Central to the development of an effective knowledge economy is the development of a national innovation system. According to the World Bank a 'national innovation system' is:

[A] well-articulated network of firms, research centres, universities, and think tanks that work together to take advantage of global knowledge – assimilating and adapting it to local needs, thus creating new technology. Tertiary education systems figure prominently in such systems, serving not only as the backbone for high-level skills, but as centres of basic and applied research.⁴

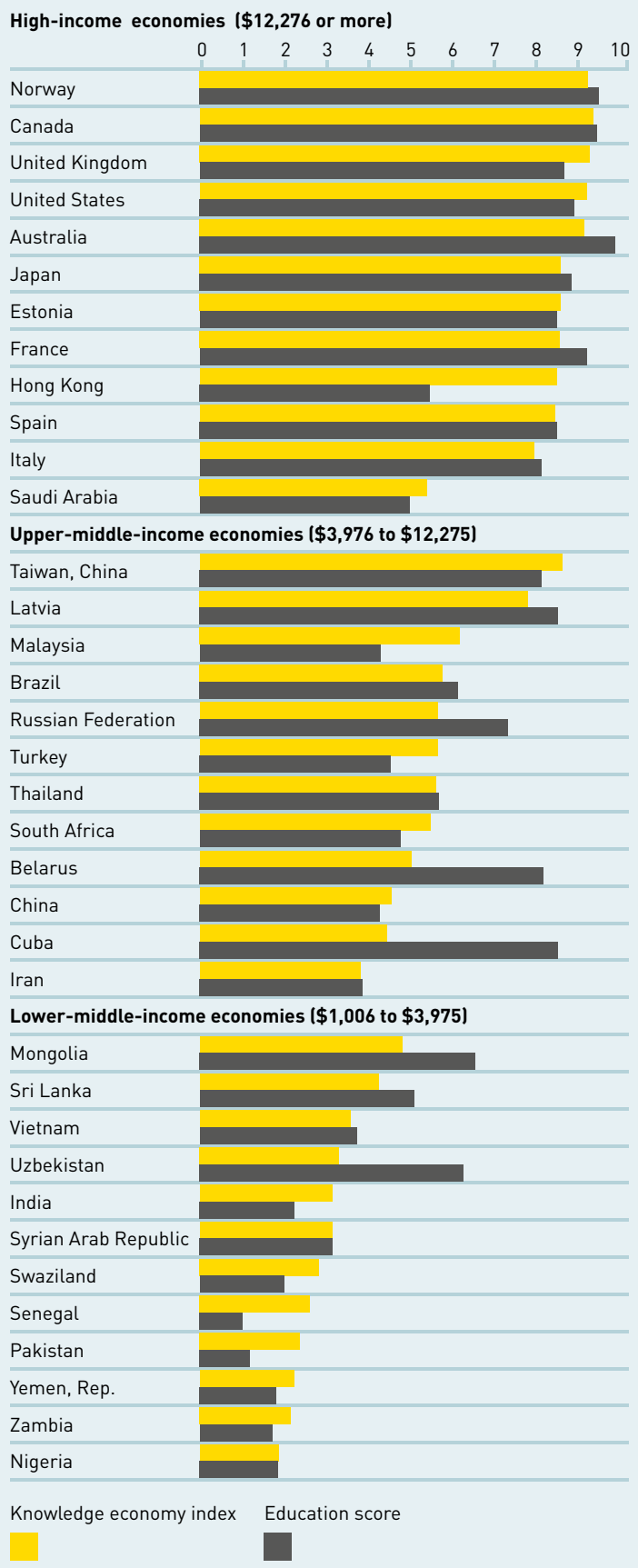
There is potential for knowledge-based economic growth across a wide range of countries, some of which have further to go in terms of education of their population than others. The World Bank has developed a benchmarking tool that evaluates the preparedness of countries for knowledge-based economic development. This evaluation includes the economic regime (tariff barriers, rule of law and regulatory quality), innovation outputs (patents, royalties, and scientific and technical journal articles), ICT (penetration into business and population), and education (literacy, secondary and tertiary enrolment) (Fig 15).

As part of knowledge economy strategies, many countries are investing in the development of world-class higher education institutions. World-class institutions act as important conduits for international research expertise, attract and retain human capital within a particular country, and encourage international businesses to establish themselves – all factors that contribute substantially to national competitive advantage in the global knowledge economy.

In addition, a number of countries are actively seeking to increase their market share of internationally mobile students. This includes European countries offering English language provision as well as countries in East Asia and the Pacific such as Australia, China and Hong Kong. This is partly evidenced in the change in market share of internationally mobile students between 2000 and 2009 (Fig 16).

FIG 15

Knowledge economy index rankings and education score of selected countries, 2009



³International student migration will remain a significant feature of the global landscape into the foreseeable future for a range of low- and intermediate-income countries. National governments will continue to use bilateral arrangements in the short to medium term, particularly in professional disciplines such as health and other advanced postgraduate courses, such as STEM subjects, to support development needs.

⁴For further information about the World Bank's work on the knowledge economy, see their Education for the Knowledge Economy web pages.

The developing global middle class

Increased enrolment in higher education is closely linked to the development of an educated economic middle class. Although writing prior to the 2008 banking crisis, the World Bank predicted that future changes in the global economy are likely to particularly benefit households in the third, fourth and fifth world income deciles. While the middle class's share in the world population remained largely the same from 1993 to 2000, its income share rose from 12 per cent to 14 per cent. By 2030, the size of this group is projected to surpass one billion, making it the fastest-growing segment of the world's population (World Bank 2007: 73) – and over 90 per cent of the members of this middle class will reside in developing countries.

Global opportunities for UK higher education

In 2009/10, for the first time, there were more overseas students undertaking UK courses overseas than came to the UK to study (Fig 17). This form of provision is known as transnational education (TNE): the delivery of UK degree programmes, modules, training and other types of education at overseas locations. TNE presents significant strategic opportunities for institutions wishing to extend their reach around the world, including:

- reaching a huge potential new market of students who seek a UK degree, but who don't have the means to travel to the UK to study
- developing new streams of revenue for capacity development in teaching and research
- developing a presence and identity in a new market
- expanding international operations and internationalisation strategies
- opening doors to other types of partnerships, such as research links and knowledge exchange with business

TNE therefore represents the most significant global growth opportunity for UK higher education over the long term. TNE collaborations increase global opportunities for access to higher education, creating significant social value and public benefit in the process.

FIG 16

Percentage point change in market share of internationally mobile students, 2000-2009

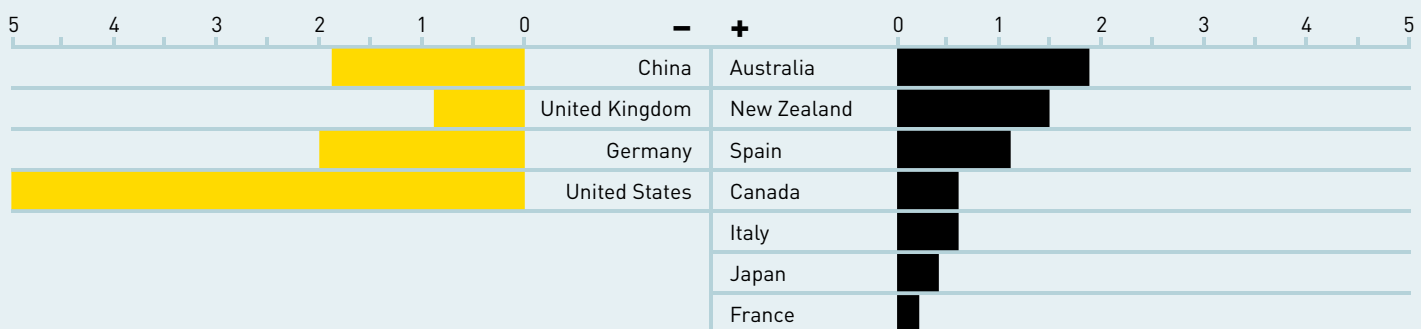
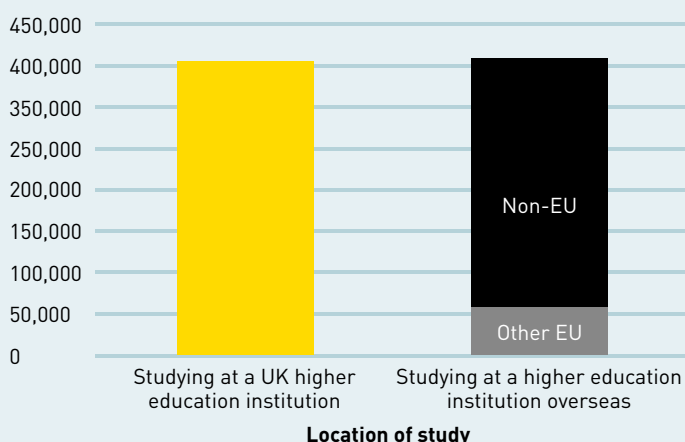


FIG 17

Number of non-UK students registered on higher education level UK courses, 2009/10



Models of TNE provision

The defining feature of TNE is that the programmes are those of the home institution, taught abroad. TNE can range from one or two degree programmes delivered by a partner university or a private provider, using their staff and some 'flying faculty' from the home institution, to a complete overseas campus. It also allows flexibility in that some of the programme can be taught at the home institution if affordable and desired. It allows the UK institution to offer UK and EU students an international experience in overseas locations as an integral part of their course.

Typical models include:

- full-scale campuses
- faculties in educational villages
- franchising of UK degrees for local delivery
- twinning arrangements with study in both the local country and the UK
- validation of local programmes by UK institutions
- distance learning programmes
- collaborative delivery with shared input in curriculum, eg joint, double or dual degrees
- advanced standing or articulation agreements

TNE case study: Hong Kong

The following UK institutions offer TNE provision registered with the Hong Kong Education Bureau, in partnership with local providers:

- | | |
|--|--|
| 1. Birmingham City University | 27. University College Birmingham |
| 2. Coventry University | 28. University of Bath |
| 3. De Montfort University | 29. University of Bedfordshire |
| 4. Durham University | 30. University of Birmingham |
| 5. Edinburgh Napier University | 31. University of Bolton |
| 6. Glyndŵr University | 32. University of Bradford |
| 7. Heriot-Watt University | 33. University of Central Lancashire |
| 8. Kingston University | 34. University of Derby |
| 9. Lancaster University | 35. University of Glamorgan |
| 10. Leeds Metropolitan University | 36. University of Gloucestershire |
| 11. Manchester Metropolitan University | 37. University of Greenwich |
| 12. Middlesex University | 38. University of Hertfordshire |
| 13. Northumbria University | 39. University of Huddersfield |
| 14. Nottingham Trent University | 40. University of Leicester |
| 15. Oxford Brookes University | 41. University of London |
| 16. Plymouth University | 42. University of Portsmouth |
| 17. Queen Mary, University of London | 43. University of Reading |
| 18. Sheffield Hallam University | 44. University of Salford |
| 19. Staffordshire University | 45. University of Strathclyde |
| 20. Swansea Metropolitan University | 46. University of Sunderland |
| 21. The Royal Veterinary College, University of London | 47. University of Surrey |
| 22. The University of Hull | 48. University of Ulster |
| 23. The University of Manchester | 49. University of Wales |
| 24. The University of Northampton | 50. University of Wales, Newport |
| 25. The University of Nottingham | 51. University of Wolverhampton |
| 26. The University of Warwick | 52. University of West of England, Bristol |
| | 53. York St John University |

Global research networks

The continued strength of the traditional centres of scientific excellence and the emergence of new players and leaders point towards an increasingly multi-polar scientific world, in which the distribution of scientific activity is concentrated in a number of widely dispersed hubs. (Royal Society 2011: 5)

Research to support knowledge transfer and innovation, carried out in partnership between universities, industry and society, will continue to be a critical feature of the economic landscape. Economic development and greater investment in research in emerging economies will also increase the domestic imperative to maintain competitiveness in research and innovation.

The influence of emerging economies will produce an increasingly multi-polar research landscape. Regionalisation of research networks is traditionally facilitated by geographical and cultural proximity and shared development trajectories, and is further developed by regional funding programmes (such as European Union collaborative research funding). However, with the emergence of developing economies (and their significant levels of investment), new regional networks and opportunities for collaboration and knowledge exchange will begin to develop.

Communications technology and staff mobility will also continue to facilitate the development of transnational global networks of researchers. The proliferation of 'grand challenge' research programmes is an acknowledgement of the global nature of many concerns, and of the need to draw on specialism from around the world in order to address the most pressing problems. Online searchable journal databases, international high speed communication technologies, and low-cost international travel have all contributed to the growth of new networks of researchers collaborating more effectively across traditional geographical boundaries (although the era of low-cost international travel may now be over). In an increasingly global landscape, these opportunities and networks are likely to extend into new and developing regions of the world.

HEGlobal Integrated Advisory Service

The HEGlobal web portal aims to improve higher education institutions' access to services for TNE activities and address barriers to engaging in TNE activities. It will give users:

- better knowledge of foreign market opportunities
- clearer and better coordinated provision of government and other partners' services
- better understanding of foreign quality assurance and accrediting systems
- access to finance and insurance to reduce risks
- access to key information to help institutions assess risks and carry out due diligence before undertaking TNE activities

HEGlobal is hosted by UUK and the UK Higher Education International Unit and reports to the International Education Advisory Forum, chaired by David Willetts, Minister of State for Universities and Science. The project will coordinate the existing expertise and resources of:

- Universities UK
- UK Higher Education International Unit
- UK Trade & Investment
- British Council
- Quality Assurance Agency
- Export Credit Guarantee Department
- Foreign and Commonwealth Office
- Science and Innovation Networks
- Department for Business, Innovation and Skills
- Research Councils UK
- Training Gateway

Growing research investment overseas

China	<ul style="list-style-type: none">- 20% annual growth in R&D investment since 1999- 1.5m science and engineering graduates in 2006- Increase in R&D investment to 2.5% of GDP by 2020
India	<ul style="list-style-type: none">- 2.5m science and engineering graduates per annum (average)- Threefold increase in R&D spend over last decade, aiming for 2% of GDP in next five years
Brazil	<ul style="list-style-type: none">- Increase R&D investment to 2.5% of GDP

3. Innovation in higher education delivery

Universities have played a very significant role in incubating the new technologies that are currently shaping society, such as internet technology and the digitisation of content. However, innovation is a continual process, and in the future institutions will face new internal and external developments shaping the landscape of higher education in the UK and around the world. These include:

- the growth in the range of providers in the domestic sphere, which will encourage new organisational models for the delivery of higher education
- the growing use of technology in teaching and learning in domestic and TNE provision
- the 'unbundling' of delivery through (for example) partnerships, spin out organisations, and the fragmentation of knowledge and information provision⁵

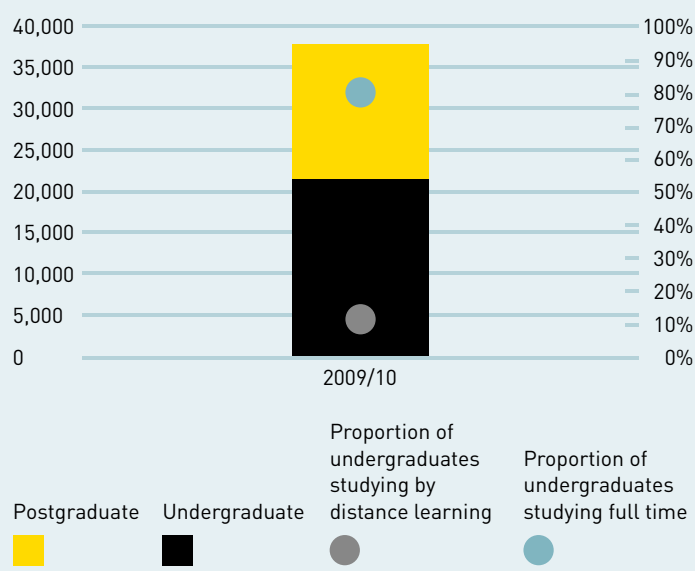
New providers and new approaches

[I]n most countries the private sector [expands] access by creating niche offerings, by entering new geographic locations... by offering alternative delivery models and by serving specific student populations... both where publicly-funded provision is not available and where it is. (Middlehurst and Fielden 2011: 30-31)

For-profit private providers are a growing feature of higher education around the world, driven by the global increase in demand. In the UK, a recent survey by HESA showed that, in 2010, nearly 38,000 students were registered on higher education courses at private and for-profit higher education providers. Fifty-seven per cent of these were undergraduates, of whom 12 per cent were registered as studying via distance learning (Fig 18). Forty-eight per cent of all students were from outside the EU. There is also already one major for-profit provider with degree awarding powers: BPP University College, owned by the Apollo Group (which also owns the University of Phoenix). The University of Phoenix has seen significant growth in student numbers, from around 25,000 enrolled students in 1995 to 455,600 in 2010. Validating partnerships between universities and private colleges have also been growing since 2000, in part driven by international demand for UK degrees.⁶

FIG 18

Provisional figures on student numbers at private and for-profit providers of higher education in the UK, 2009/10



⁵'Unbundling' is a concept that emerged from the deregulation of telecommunications and other public utilities. It refers to the separation of ownership of different parts of infrastructure and process in service delivery. It has also been used in some instances to refer to the compartmentalisation of different components of the end consumer product, such as offering personalised 'pick-and-choose' packages of services.

⁶For further details on private provision in the UK please see Universities UK (2010) *The growth of private and for-profit higher education providers in the UK* London: UUK.

In many cases for-profit providers have established themselves in new market areas not typically served by established institutions. In addition, for-profit providers in the United States, as well as not-for-profits, are making increasing use of online learning, and are unbundling the components of their delivery. An important feature of the success of the for-profit

sector in the United States has been the recruitment of non-traditional groups into higher education.

These are all trends that can be expected to develop further in the future, and which may in turn shape the patterns of revenue and expenditure within the sector, as is the case in the United States (Fig 19a and 19b).

FIG 19a

Revenue per FTE student at US higher education institutions by income stream, 2008/09

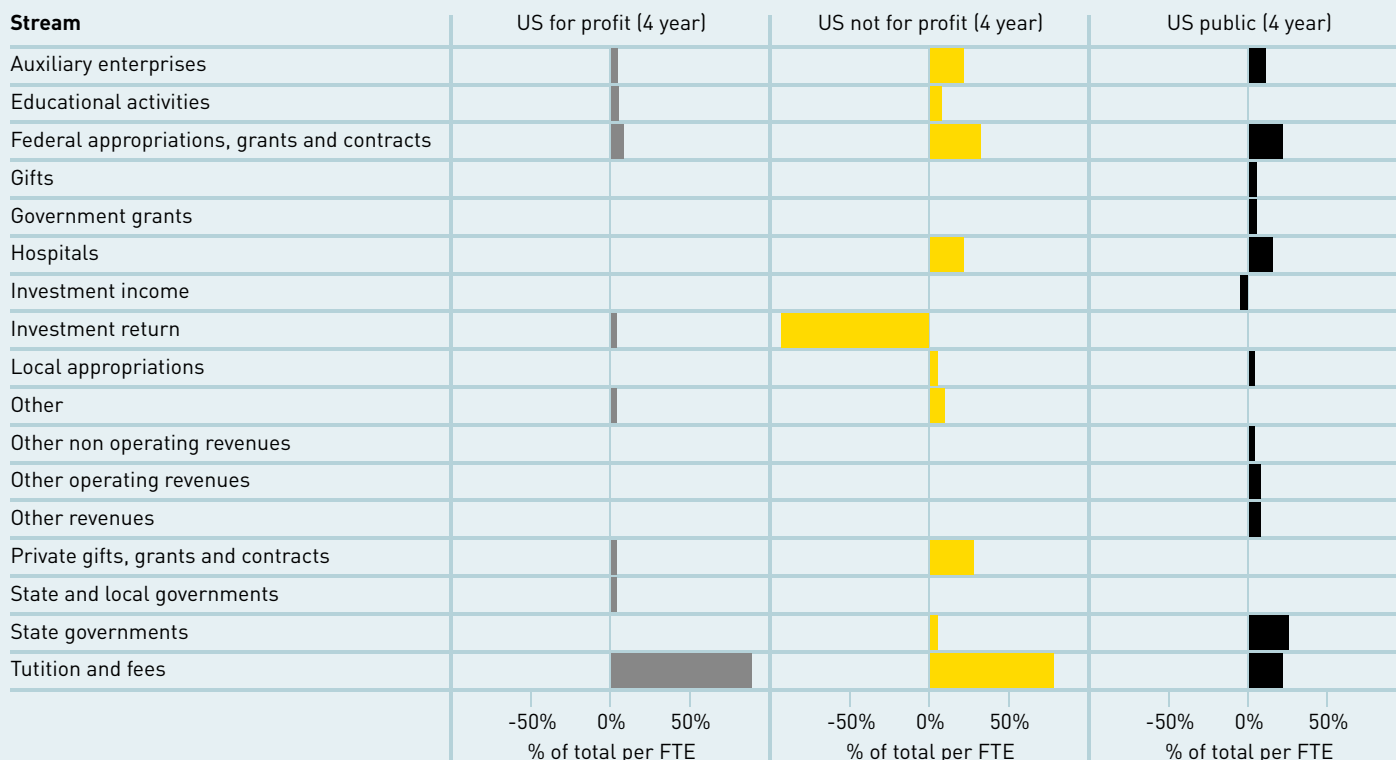
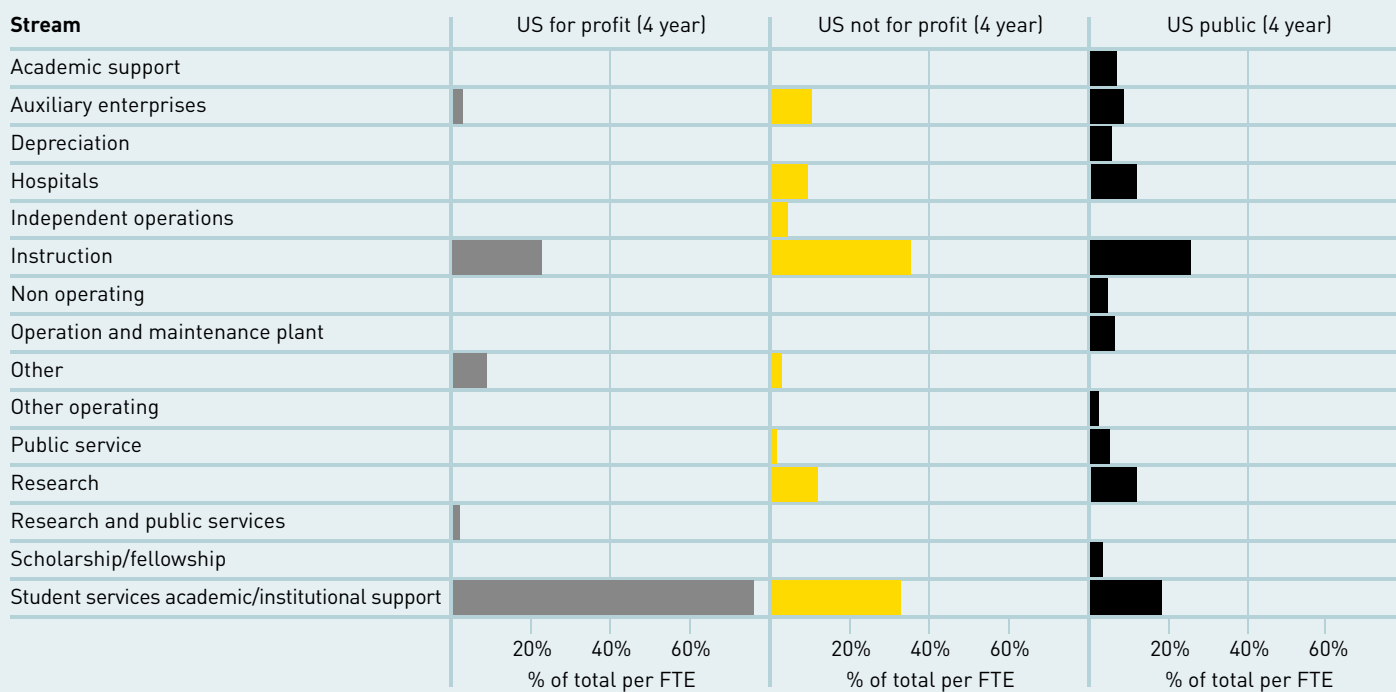


FIG 19b

Expenditure per FTE student at US higher education institutions by income stream, 2008/09



The impact of technology

In the coming years, rapid technological development will require higher education institutions to continually review their approaches to teaching and research methods. This will be driven by:

- improved domestic access to high speed broadband
- changing social attitudes of students and staff in relation to the use and adaptation of technology
- rapid innovation in online technology, including mobile devices and cloud computing
- 'bottom-up' adoption of externally-developed technologies into the activities of an institution by students and lecturers

The principal direct impact of learning technology is its scope to change significantly the delivery of higher education in terms of volume and distance. That is:

- the ability to reach a much larger volume of students, with fewer resources
- the ability to reach students over much longer distances, while maintaining a direct interaction in real time through shared online spaces

The role of technology in the delivery of teaching has long been discussed, but has had only limited impact on mainstream usage to date. Distance learning is currently a relatively small element of the higher education landscape, with only 5.3 per cent of undergraduates registered as studying in this mode.⁷ Early predictions that online provision would claim a high proportion of market share have not yet been borne out.

Online learning developments in UK universities

A recent report to the Higher Education Funding Council for England on online learning highlighted that there remained a great deal of work to be done in developing a taxonomy of the market. It also found that:

- Courses provided by institutional-private sector partnerships were heavily biased towards business-orientated provision.
- The relatively large number of Level 4 courses (approximately one-third of the total offered) were typically short stand-alone courses offering 10 or 20 credits toward a higher education award.
- A significant number of Level 4 and Level 5 courses were identified that could potentially provide a route into higher education.

However, the widespread digitisation of journals and resources for online access, and the use of online technologies in institutions for libraries, timetable management and communication, highlight the existing integration of online technology in higher education. The report also noted the use of online learning in TNE delivery, which accounts for a significant proportion of all online provision (with more than 74,000 students enrolled on distance learning courses). Innovations such as the development of online classrooms are a key component in bringing students together into a collaborative learning environment over long distances.

Consideration of potential patterns of growth of blended and online provision must also take account of the technological and social context. In 2005 only 25 per cent of homes in the UK had a broadband connection, increasing to 70 per cent in 2009 (OFCOM 2011). The United States has also grown (from a slightly higher base) to a similar level of coverage. In addition, changes in technology are having a significant impact on attitudes to web usage – the cohorts of students arriving at university now and in the future are going to be increasingly socialised towards web-based communication. The increasing integration of online learning methods and skills into secondary school curricula may also influence the implementation and uptake of online learning at higher levels.

⁷HESA student record, 2009/10. Note this excludes the students at private providers shown in Figure 15.

Deregulation and organisational form

Courses provided in partnership with commercial organisations are more evenly spread across the HE academic levels, but taken in conjunction with those offered directly by institutions the emphasis remains on postgraduate provision. (White D et al 2010: 1)

Unbundling is likely to be an important, and potentially disruptive, feature of the higher education landscape in the future.⁸ There are two main forms of this: supply-side models and demand-side models (see table below).

Both of these models present challenges to more traditionally-structured universities. For example, the shift towards open access to information presents challenges in terms of the role of the institution in validating knowledge and information. Wider access to information through the internet has drawn parallels with the music industry, which has had to respond both to illegal access to content, and to the dominance of monopoly providers. There are also challenges in terms of an institution's flexibility to respond swiftly to new and more efficient models of provision.

Forms of unbundling	
Supply side: Compartmentalising and disaggregating delivery process	Infrastructure: Use of third parties for delivery of essential infrastructure and 'back office' functions such as IT network management.
	Faculty and teaching: Disaggregation of integrated faculty models through internal restructuring or the use of externally contracted staff to teach, draft curricula or develop resources.
	Teaching and awards: Portability of the higher education 'product' in the form of the degree award through validation and the external delivery of curricula through franchising and partnership provision. A long history domestically but rapidly developing through TNE activities.
Demand side: Compartmentalising and disaggregating outputs or consumption	Personally tailored learning: Quicker or multiple routes to qualification, pay-as-you-go credit accumulation, optional purchasing of resources, learning support and facilities? Typically associated with for-profit providers from the United States such as the University of Phoenix.
	Educational resources: Including open educational resources, such as formal and informal access to resources from a variety of online sources that can support independent learning. Examples include Harvard Online, Stanford's free introduction to artificial intelligence, and London School of Business and Finance's Facebook MBA course with free materials and an option to sit a validated exam at the end for an award.

Case studies

Many of the activities associated with unbundling are actually already present in the UK system, or are being driven through development by for-profit education providers in the United States and Australia.

Example 1: Validation, partnership and franchising

Over 115,000 students are on UK provision overseas through collaborative arrangements and almost 208,000 at a partner organisation overseas supporting the delivery of advanced curricula in local institutions. Higher education in further education models have been in place since the late 1980s and early 1990s. Examples such as Plymouth University have a regional network of further education colleges delivering higher education, and estimates put numbers enrolled in higher education in further education colleges at between eight and ten per cent of the total UK student population.

Example 2: Public private partnership

Pathway provision opportunities offered by organisations such as INTO are classic public private partnership models. INTO are notable as their traditional model involved being based on campus, with students enrolled on pathway provision and taught by INTO staff in a building built with INTO investment but as fully enrolled as students of the university. This model and others like it have also extended to include provision of one-year teaching that articulates into the second year of undergraduate courses. However, like many organisations in the current environment, INTO are also updating this model to introduce new forms of pathway delivery.

4. Redefining the institution

It is not just a matter of generating sufficient income to remain in business but that it is equally essential that the institution proves its relevance to society and the various entities in society that it regards as important.
(Jongbloed et al 2008: 303–324)

The previous sections of this report have described long-term trends that are likely to affect the higher education system, including changes in funding and governance, global developments, and new innovations in delivery.

In addition to these factors, critical dimensions of uncertainty facing institutions include:

- volatile domestic economic landscapes
- political interventions which are ad hoc in nature
- complexity and volatility in overseas economic, political and cultural landscapes
- new technological and organisational innovations that may come from outside the system
- the impact of cultural and policy changes on student demand

In order to prepare themselves for this new and evolving landscape, some institutions may need to re-evaluate their longer-term strategies. Current government policy is likely to see the sector become more divergent in terms of tuition fees and the prior qualifications of students. Other factors will create greater fluidity: further education colleges will seek to grow their provision of higher education; schools and academy consortia will seek to take market share of initial teacher training; the landscape for the provision of healthcare education and training is shifting; and new types of providers will enter the market with different types of products. The combined effect of these changes is that some institutions may need to reposition themselves and adjust their brand.

This final section looks at how some institutions might be evaluating some or all of the following strategic areas:

- Their overall values and ethos
- The role and importance of maintaining a clear institutional identity
- How to deliver a high quality product in a shifting environment
- How to be an effective organisation

⁸The role of technology in creating greater flexibility and tailoring of delivery to students and institutional models was explored in a scenario planning project run by JISC and set out in JISC Netskills (2009). While not referring to unbundling explicitly, this report identified the ways in which technology can be used to reshape the process of delivery of education. This captured the roles that technology can play in compartmentalising and extending the reach of the delivery of higher education, sometimes referred to as unbundling. In the United States, growing attention is being given to the idea of unbundling being a 'disruptive innovation' in higher education – see, for example, Christensen CM, Eyring H (2011) *The Innovative University: Changing the DNA of Higher Education from the Inside Out* NJ: Jossey-Bass.

⁹'Private providers typically offer multiple entry points in a year, quicker routes to qualification and choices of study mode; they may also offer smaller class sizes and focused attention on student needs and employability.' Middlehurst R, Fielden J (2011): p. 32.

A set of common themes could underpin the institutional response to the challenges of the future:

- The importance of institutional diversity
- The need to work with the government of the day to secure public value outcomes
- The need to be responsive to the changing needs of society
- Generating the resources to remain innovative and creative

Evolving challenges for institutions

TNE and overseas activities

The development of TNE presents significant opportunities for institutions, but also a new set of challenges that need to be addressed. These include:

- significant financial risks associated with investment in overseas projects
- political and reputational risks generated by operating in certain environments
- managing cultural differences around students, staff and other employees
- potential confusion over the identity of qualifications for students qualifying overseas
- establishing and maintaining a quality learning community in new locations or over long distances

Online delivery

Online technologies are already playing an important role in university life and offer great possibilities, as well as a set of challenges for their successful incorporation:

- developing and maintaining effective collaborative learning styles over long distances and across time zones
- different competencies and attitudes toward technology between staff and students
- patterns of user access to necessary technology – both in the UK and overseas
- the impact of school curricula and prior usage of technology in learning
- changing online research methods and search algorithms

Re-articulating university values

The overall mission of universities remains broadly constant regardless of particular social or economic circumstances: to deliver high quality teaching and research, and to serve the needs of society. However, as the wider environment evolves – as it will do, dramatically – in the near future, the ways in which this mission is articulated and delivered may change.

Increasingly, the delivery of higher level qualifications and vocational skills is being carried out by a new set of providers operating domestically, internationally, and online. In this more challenging and market-oriented landscape, institutions will wish to keep under review what it is that gives them a distinctive edge.

Particular features of a university that are not typically shared by other institutions and education organisations include:

- the development of new knowledge for society through research and academic enquiry
- a commitment to academic freedom for staff to explore and critique the world around them
- an ethos of openness and serving the public good in its values and governance

These features link to statutory regulation as well as subjective ideas of what a university should be and what it should stand for.¹⁰ Universities are typically civic institutions embedded in local areas with regional, national and global social agendas. All look to be known for excellence in teaching and research that serves their constituencies. Many look to respond to evolving patterns of employment to help professionalise and raise standards in new areas of employment. Some have missions focused on widening access; others focus on particular forms of research excellence. Many institutions actively engage with and support businesses to help develop innovation and improvement in their work. And most run social responsibility and engagement programmes in their local area.

Institutional identity

Many institutions will wish to enhance and continue the work they do to emphasise their distinctiveness and maintain a clear institutional identity in a more crowded and competitive environment. A clear and easily-communicable identity is an important element in attracting staff, students, funding and opportunities for collaboration, as well as potential partners for other types of services or activities that an institution may undertake.

As institutional leaders know, sharpening and developing a distinctive identity requires evaluation of:

- how an institution is perceived by staff, students, the sector, external communities and stakeholders
- the features of an institution that may be communicated to and understood by an outside audience
- the receptiveness of various audiences and stakeholders to that identity

Maintaining quality

Institutions will also want to continue to assess how they underpin their success through the development and maintenance of a reputation for excellence in all of their outputs. Quality assurance plays an important part in regulating standards and maintaining confidence among students, institutions, politicians and policy-makers, and the international community.

Three main elements were typically identified with ongoing success by institutions throughout the UUK scenario development exercise:

- maintaining the right intellectual mix and capacity to develop new knowledge through research and scholarship
- effectively transferring knowledge into practical outputs, in the form of course curricula or knowledge exchange with external parties
- communicating knowledge in partnership in order to maximise its transformative impact

¹⁰See for example Nixon J (2011) *Higher Education and the Public Good: Imagining the University* London and New York: Continuum, and Barnett R (2011) *Being a University* Oxon: Routledge.

Institutions will also increasingly need to evaluate their success externally in terms of the constituencies that they serve, as opposed to undertaking relative evaluation against each other.

Modes of institutional delivery may vary, ranging from traditional models of integrated faculty and high levels of face-to-face contact between students and staff, to total unbundling of content and delivery, and blended use of new technology and innovation. In all approaches, success is underpinned by the quality of relationships between all interested parties and stakeholders, and institutions will need to continually evaluate their constituencies and their methods of communicating and working with them effectively.

Reach and relationships

All institutions are embedded in a system of higher education that cuts across individual organisational boundaries through communities of practice in terms of research, professional associations and students. In the light of growing complexity, increased international opportunities, and funding and competition challenges, institutions will need to consider developing institutional collaborations to support the achievement of their objectives.

Potential areas of development include shared services and other forms of collaboration focused on efficiency. Beyond this, areas that may be explored by institutions include bilateral institutional partnerships, or the development of networks or federations of institutions with local, regional and international reach in order to:

- increase their capacity on a global stage, to attract research funding, staff and students
- capitalise on complementary features, competencies or reach, to develop and deliver courses

Both these models increase the intellectual and delivery capacity of an institution by developing their partnerships on the basis of their core competencies of teaching and research. Such developments may include networks of further education and higher education providers, partnerships with overseas institutions, or collaboration with online delivery specialists.

They also present challenges to institutions in terms of (for example) maintaining institutional identity and reputation, aligning attitudes toward intellectual capital, and the managerial challenges associated with multi-agency delivery.

Examples of collaboration and partnership

Examples of strategic collaboration between institutions include:

- doctoral training centres involving consortia of institutions in order to achieve the capacity and competency for successful award and delivery
- university courses in further education colleges to support provision of degrees in new locations and closer to target populations
- overseas collaborations for TNE delivery, with new educational challenges and opportunities for research and knowledge exchange activities

Examples of innovation partnerships with business

Partnership is also important as part of knowledge exchange activities, and public private partnerships are a longstanding feature of the sector. High profile examples include the Rolls Royce University Technology Centres and the Network of Advanced Manufacturing Research Centres. These latter involve 13 different UK institutions, some involving collaboration between institutions that support the R&D of a world-leading engineering company and advanced academic research and training. Other examples include accountancy courses developed and funded in partnership with professional services firms. These models and networks are established features for institutions looking to respond to and shape the changing needs of society and industry.

Investment-driven organisations

In this changing landscape, all institutions will need to evaluate their capacity to deliver independent, long-term strategies. Three important areas for consideration that were identified by institutions during the scenario development exercise were:

1. Assessment of revenue and investment strategy

Central questions in relation to investment included:

- the volume of research that an institution can support to generate new knowledge and attract staff
- where to target global investment, such as mature or emerging markets, and insuring against increased economic and political risks
- investment in new models of delivery such as online learning, or maintaining an emphasis on traditional face-to-face approaches

2. Assessment of institutional efficiency

This included looking at shared services, efficiencies of scale, and increased collaboration.

3. Assessment of organisational capacity

This covered questions such as: the trade-off between investment in capacity to manage strategic direction against 'front line' investment in services, research and teaching; and the organisation's capacity to address significant strategic challenges in areas such as institutional positioning, international strategy development and implementation, developing new technologies, and managing external partnerships and networks.

5. Conclusions: from national industry to global system

The UUK scenario development exercise did not attempt to predict a single future or set of futures for the UK higher education system. However, its ultimate conclusion is that the future success of the system needs to be evaluated against the role that institutions and the sector play at the heart of society and the economy, serving their needs, and leading the race to find solutions to their challenges.

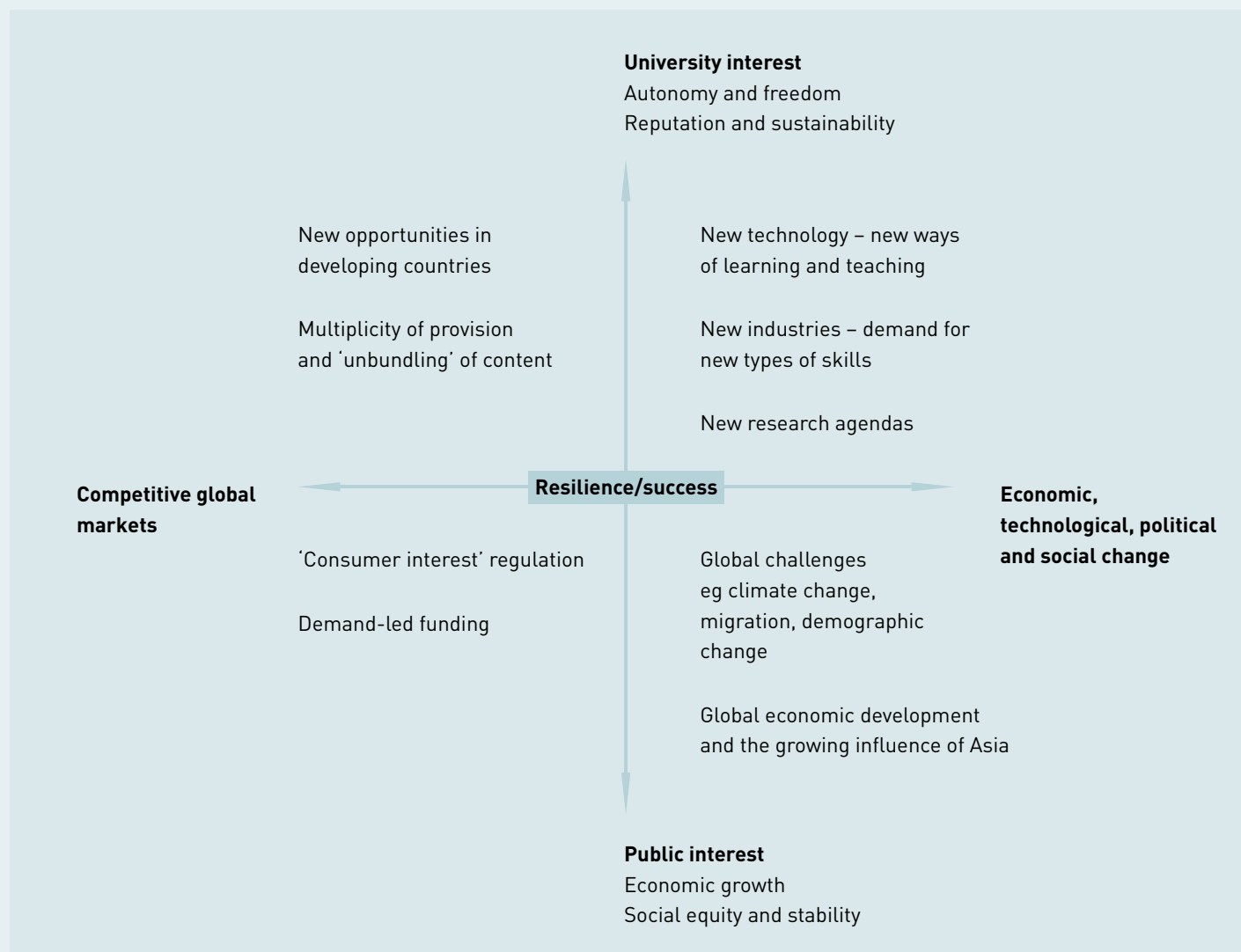
We expect that higher education institutions will continue to play an important role in the future economic and social success of the UK, helping to generate growth and stimulate social mobility in an increasingly competitive global landscape. Higher education provides the skills, knowledge and innovation that will help support a productive and successful economy. Universities also equip members of society with the skills, values and knowledge needed to operate on the global stage.

In order to achieve the goal of remaining at the heart of society, institutions, the sector as a whole, and government will need to work together to:

- maintain a global reputation for quality by preserving the highest standards across a more diverse system
- invest and develop good practice standards in delivery to keep the sector at the forefront of innovation
- deliver on agendas of wide public importance – such as social mobility, and research and innovation – which require cooperation between institutions to ensure effective outcomes
- maintain the autonomy and freedom of institutions to set their own agendas and strategies

FIG 20

The continuing challenges of the 21st century



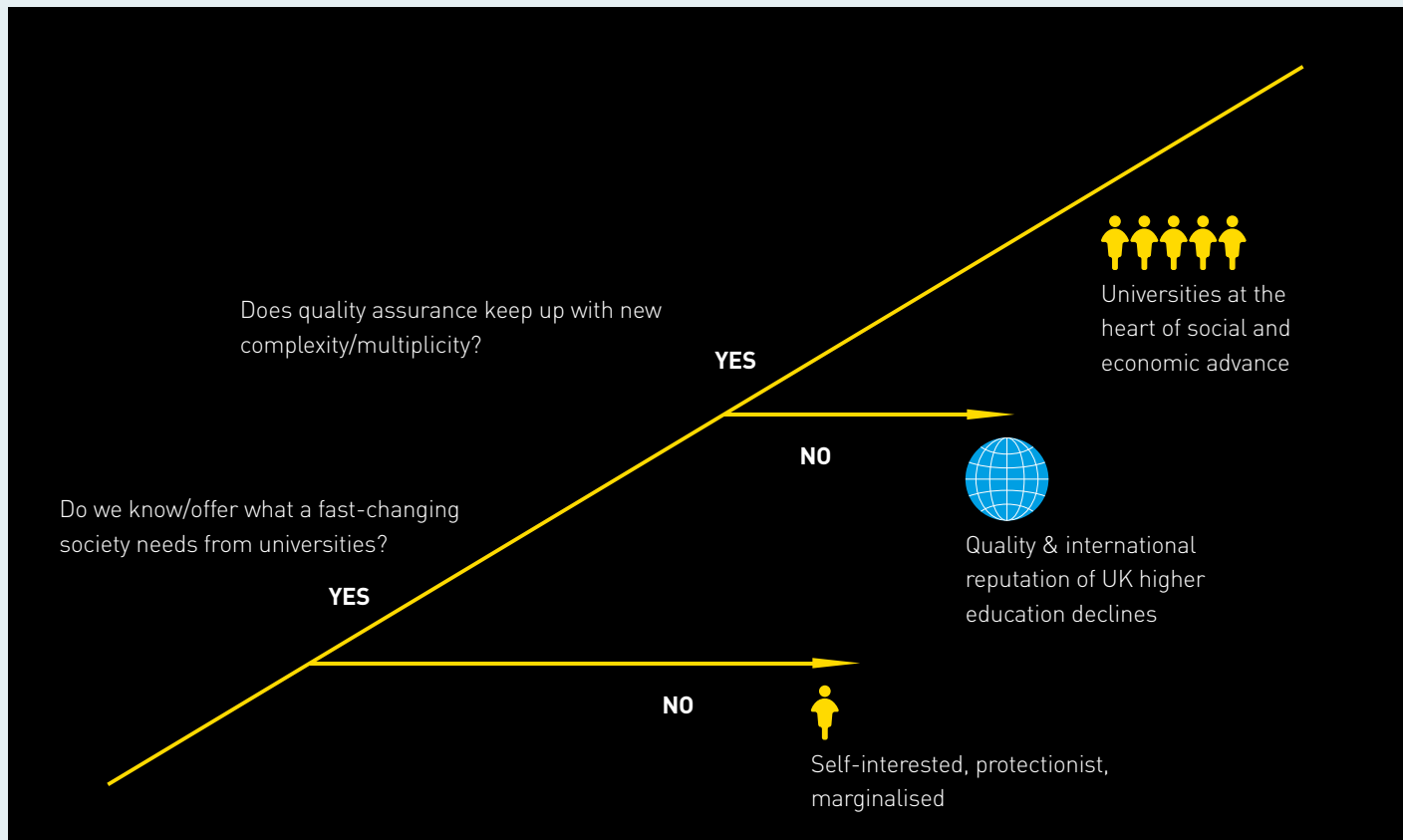
UK higher education currently faces a number of possible futures. The most positive of these (captured below) would see the increasing integration of institutional interest with the wider public good, successfully negotiating a world of ever-increasing complexity and diversity, placing universities at the heart of social and economic advancement.

Arriving there will require treading a careful path between the twin aims of:

- ensuring that universities continue to remain fully engaged in society at all levels, understanding its needs and developments
- making sure that the regulatory and operating environment for universities is such that it allows them to continue to flourish and maintain their world-class standing

FIG 21

Meeting the challenges of the 21st century



The detailed data and a full list of sources used
in this publication can be found at:
www.universitiesuk.ac.uk/ScenariosProject



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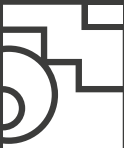
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